

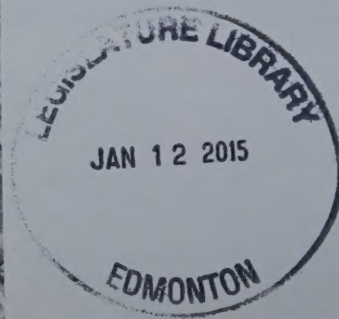
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COMMUNICATIONS NORTH



Hay River, N.W.T.



The Midnight Sun

Henry Busse, Yellowknife, N.W.T.

IT IS indicative of the tempo of resource development in northern Canada that its communications facilities have had to move rapidly to keep pace. In July, 1961, a microwave system was born in the Yukon. On April 2, 1962, another arrives to serve the Northwest Territories.

Both have their roots in the Peace River Country, the 90,000 square miles of deep soil and high fertility whose namesake waters are a major link with the great Mackenzie River system that ends in the Arctic Ocean.

Only as late as 1930 did the Federal government, historically responsible for northern communications, complete a 200-mile telegraph line north from the Town of Peace River to the communities of Keg River and Fort Vermilion. Even in 1938 only Morse wireless connected Alberta's provincial capital with northern latitudes.

Wartime brought a breakthrough. The Northwest Communications System was completed in 1943. It provided a multi-channel landline extending northwest from Edmonton through Alberta, British Columbia and the Yukon to Fairbanks, Alaska. It was entrusted to Canadian National Telecommunications in 1946.

The post-war search for new agricultural land, for oil, timber and minerals brought new people and new outlooks. While the population of The Peace was 20,000 in 1921, for instance, it now numbers 76,000. Its northern neighbor, the Northwest Territories, has grown from a few hundred to 23,000 inhabitants.

In 1955 the Government of Alberta took the first steps toward construction of a major communication link with the Peace River

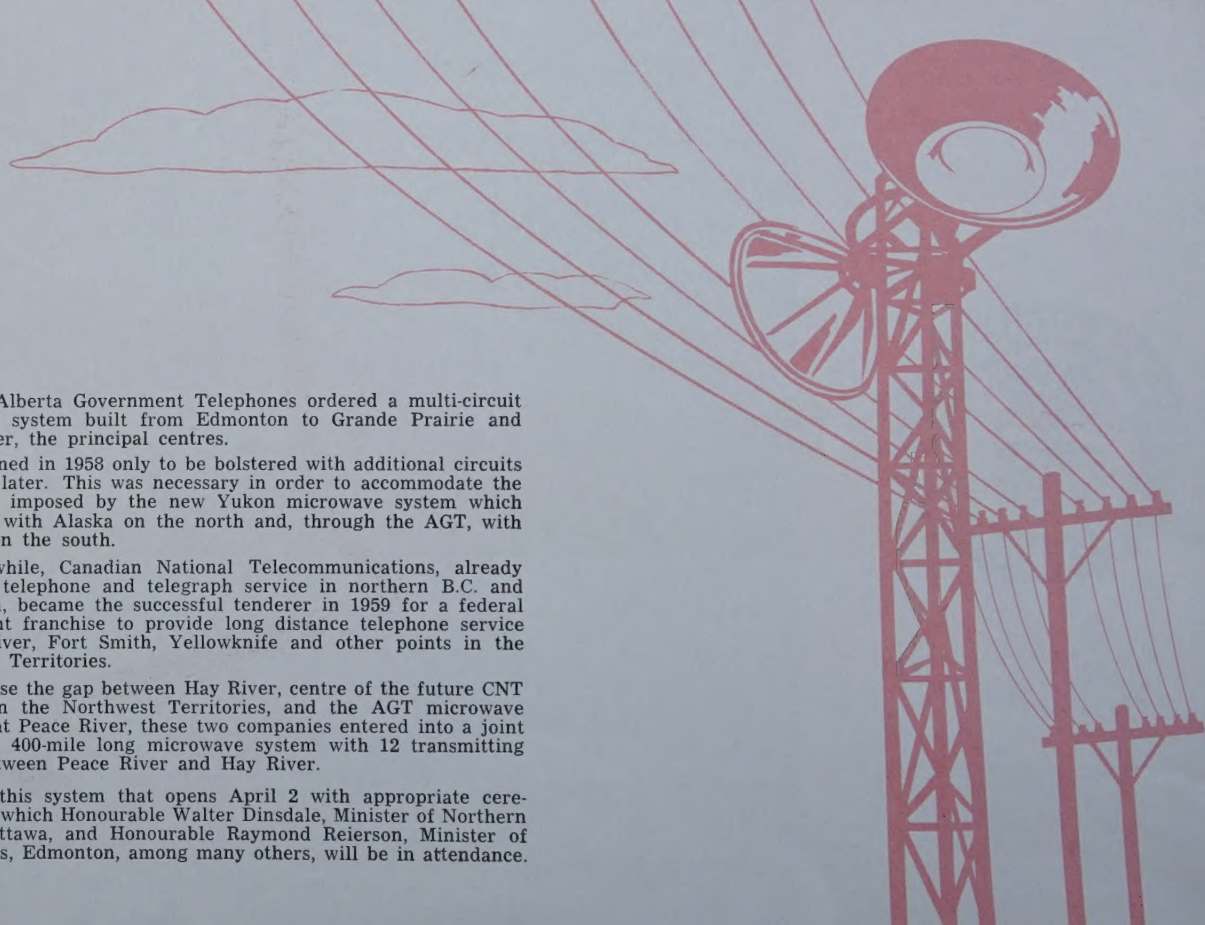
area. Its Alberta Government Telephones ordered a multi-circuit microwave system built from Edmonton to Grande Prairie and Peace River, the principal centres.

It opened in 1958 only to be bolstered with additional circuits two years later. This was necessary in order to accommodate the extra load imposed by the new Yukon microwave system which connected with Alaska on the north and, through the AGT, with Montana on the south.

Meanwhile, Canadian National Telecommunications, already providing telephone and telegraph service in northern B.C. and the Yukon, became the successful tenderer in 1959 for a federal government franchise to provide long distance telephone service to Hay River, Fort Smith, Yellowknife and other points in the Northwest Territories.

To close the gap between Hay River, centre of the future CNT network in the Northwest Territories, and the AGT microwave terminus at Peace River, these two companies entered into a joint venture: a 400-mile long microwave system with 12 transmitting towers between Peace River and Hay River.

It is this system that opens April 2 with appropriate ceremonies at which Honourable Walter Dinsdale, Minister of Northern Affairs, Ottawa, and Honourable Raymond Reiersen, Minister of Telephones, Edmonton, among many others, will be in attendance.





NORTHWEST TERRITORIES

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DAWSON CREEK

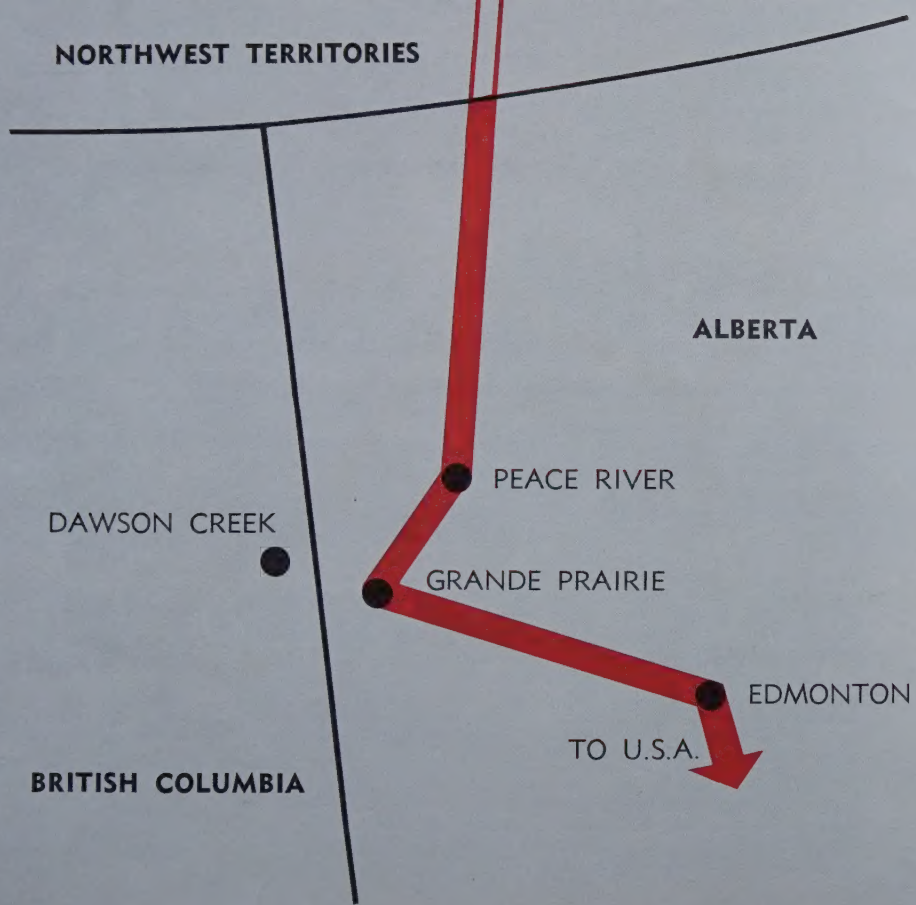
PEACE RIVER

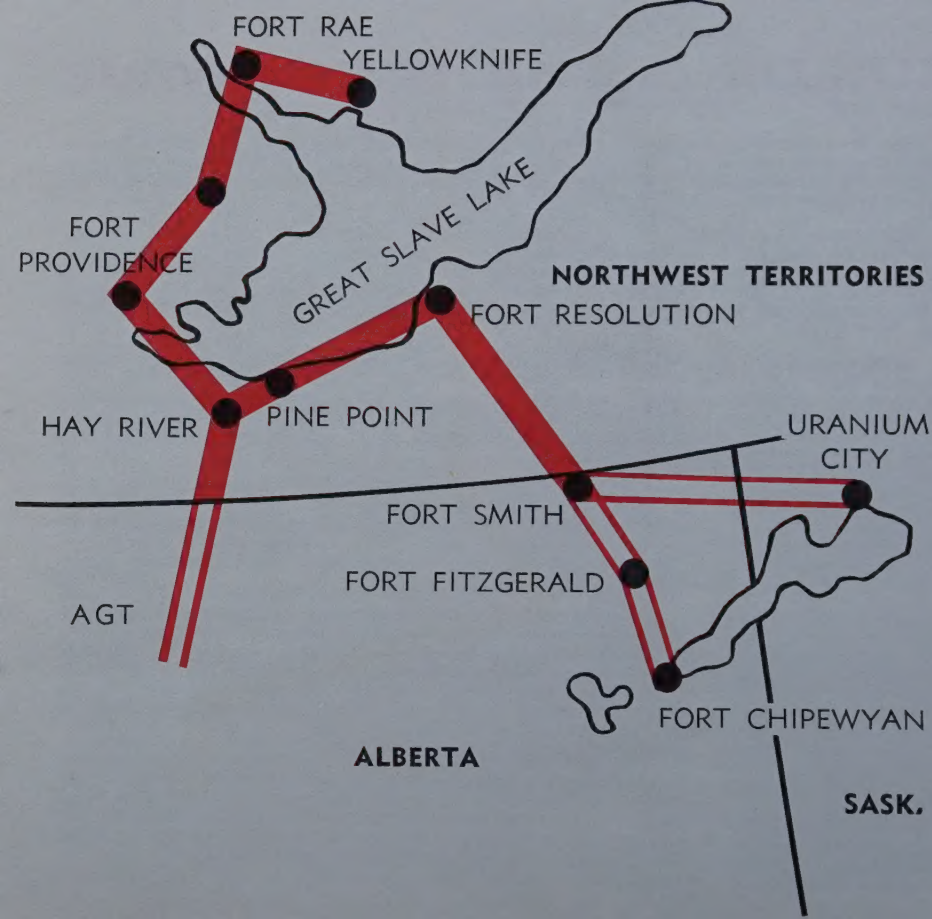
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TELECOMMUNICATIONS



BUILDING THE MICROWAVE

The Peace River-Hay River microwave was engineered and constructed by Alberta Government Telephones with the sole exception of the station at Hay River which was built and equipped by Canadian National Telecommunications. It is from AGT that CNT will purchase the two repeater stations inside the Northwest Territories.

The construction of this northern link began in May, 1960. By the end of June the preliminary sites and radio paths were chosen. The sites, generally, bordered the Mackenzie Highway which provided access for maintenance from the only land transportation route in this remote area. The Watt Mountain repeater, approximately half way, is sited on the brow of the only high hill along the route. It is connected to the Mackenzie Highway by a seven-mile forestry road.

Radio testing the route with portable 300-foot towers and a portable microwave system began in September of that year. Tests to verify the height of antennas required and to prove the adequacy of the radio path were conducted on each consecutive pair of repeater sites along the way. The four wheel drive vehicles carrying this sophisticated testing equipment encountered all manner of road and weather conditions from mud to snow drifts, but the crews completed tests by Christmas, 1960.

Construction began early in 1961 with site clearing, levelling, foundation pouring and, finally, building erection. It proceeded despite the vagaries of weather and transportation. All construction required trailerized camps. Crews encountered extreme transportation difficulties because of the remoteness of the repeater sites. Tower erections were started May 1, 1961, and completed by early September that year. Installation of radio equipment began in September and continued on through December.

The radio relay system, now completed, is a gem of advanced engineering in both simplicity and performance. It provides a main channel for transmission of intelligence and a standby channel which automatically takes over for the main channel on a "per hop" basis in the event of equipment or path failure. Performance of the same order as the Trans-Canada Microwave System has been achieved. In addition, a simple but effective fault reporting system has been provided to indicate equipment and path failures along the system, and to identify the station that might be experiencing difficulty.

Every effort has been made to ensure the reliability of the system. A 12-hour reserve battery supply is available at each location, along with a propane operated standby power plant to guard against failure of the commercial power supply. Maintenance is centred at Peace River, High Level and Hay River to ensure that personnel can be dispatched to repair failures in a minimum of time. Because of the remoteness of the area all repeater sites are equipped with sleeping and cooking facilities to assure the maximum in personnel safety.

THE RACE AGAINST BREAK-UP

Construction of the Northwest Territories' land line from Fort Smith via Hay River to Yellowknife was completed in two sections.

Most difficult section to build was the 182 miles from Hay River to Fort Smith. Here CNT crews were faced with obstacles that included scarcity of fresh water, muskeg, sub-zero weather—even hibernating bear, buffalo and the rare whooping crane.

The line had to be pushed through in the winter of 1960-61 to take advantage of the winter road across the frozen muskeg and also to meet the deadline for the new microwave system building north from Peace River.

Because the line runs almost entirely through muskeg country, poles had to be installed in tripod fashion so that they would not topple when the ground thawed.

Four crews built the line. Their mobile equipment included bunk cars, kitchens and workshops. Two mechanics worked shift to keep the equipment in running condition. With only four to five hours of daylight available much of the construction was done with the aid of portable lighting. Fresh drinking water had to be hauled over the winter road as far as 100 miles before good water was finally found at the Little Buffalo River, 150 miles east of Hay River.

In some places the dense bush made it difficult for 'dozer operators to find their centre line. Helicopters were used to reach marker points and captive balloons were sent aloft. The operators sighted on the balloons to push ahead on course.

In one or two places the line makes a minute deviation. This was done to accommodate the prior claims of hibernating bear which could be detected by the jets of steam rising into the frosty air. The original survey had to be considerably altered, however, when it was learned that it took the line through a section of Wood Buffalo National Park where the whooping crane nests.

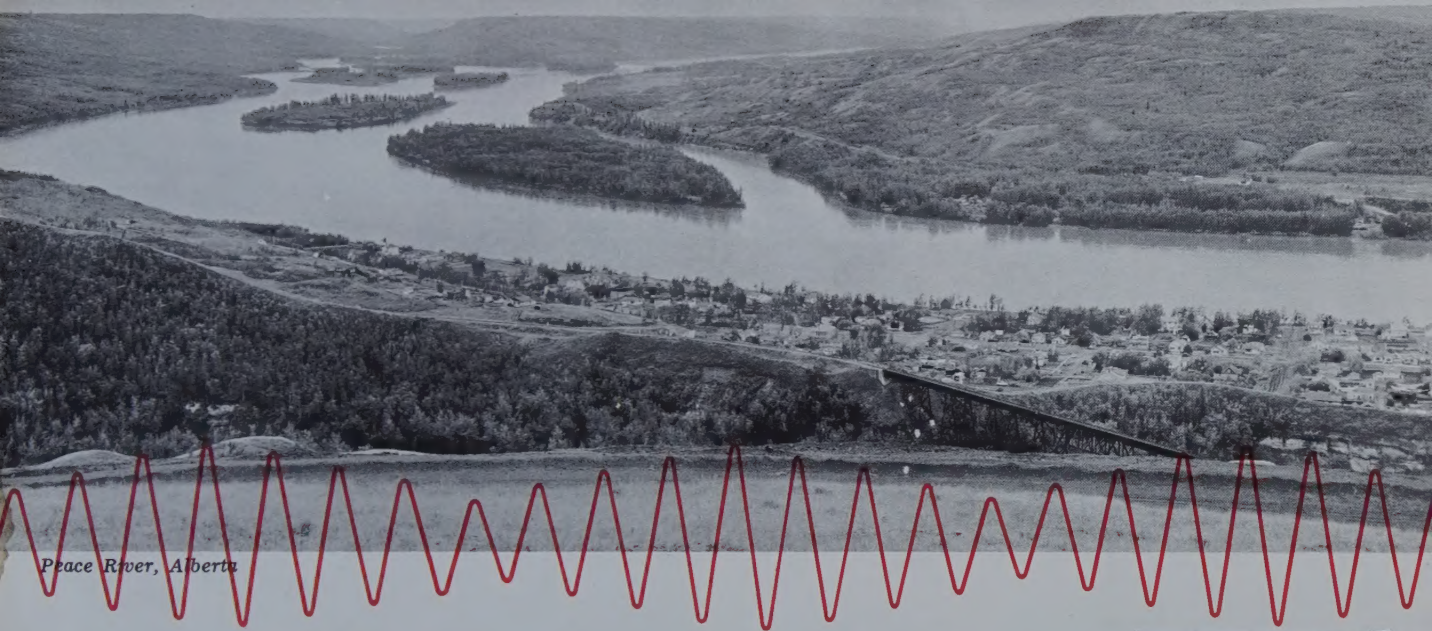
When the line was completed and the tripods settled down comfortably following the thaw, everything seemed in order. Last summer an air check revealed trouble from an unexpected source. Buffalo knocked over three poles during the rutting season. Fortunately the polyethylene coated wire kept the line intact from an operating standpoint.

There were fewer difficulties in constructing the 315-mile line from Hay River to Yellowknife. For the most part, crews

followed the Mackenzie Highway, although they had to build a 14-mile access road to effect a crossing of the Mackenzie River. The crossing was made about ten miles west of the Mackenzie Highway ferry crossing.

Submarine cable was laid from Meridian Island across the south channel of the Mackenzie to Providence Island and from Providence Island across the north channel into the community of Fort Providence. Three lengths of cable were laid on each side of Providence Island.

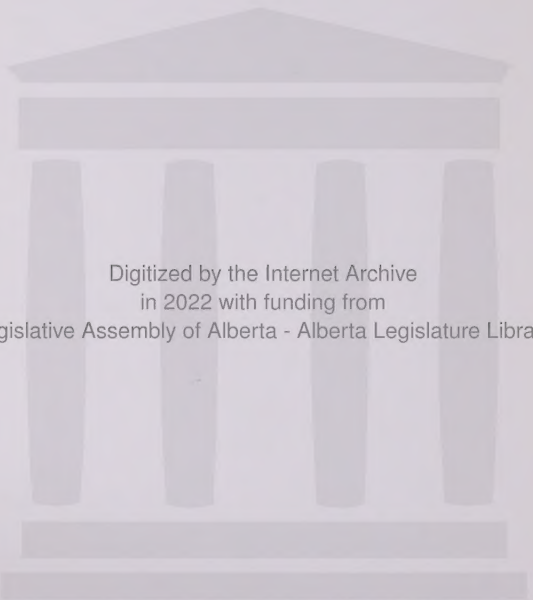




Peace River, Alberta



This book was printed to mark the opening of long distance
Telecommunications in the Northwest Territories at Hay River,
N.W.T., April 2, 1962.



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